

REMARKS

Claims 1-15 and 21-32 are pending in the present Application. Claims 1, 6, and 7 have been amended, Claims 24-26 and 30-32 have been canceled, leaving Claims 1-15 and 21-23 and 27-29 for consideration upon entry of the present Amendment.

Support for the amendment to Claims 1, 6, and 7 can at least be found in the specification at page 16, lines 9-21.

No new matter has been introduced by these amendments. Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

Claim Rejections Under 35 U.S.C. § 102(e)

Claims 24-26 have been rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by Suzawa et al. (U.S. Patent No. 6,809,339).

This rejection is moot as independent Claims 24-26 have been canceled without prejudice.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1-9 and 14 stand rejected under 35 U.S.C. § 103(a), as allegedly being unpatentable over Suzawa et al., in view of Chen et al. (U.S. Patent No. 6,283,131) or Yang et al. (U.S. Patent No. 6,579,809);

Claims 10, 15, 21-23 and 27-29 are rejected as being allegedly unpatentable over Suzawa et al. in view of Chen et al. or Yang et al. as applied to claims 1-9 and 14, and further in view of Admitted Prior Art;

Claims 30-32 are rejected as being allegedly unpatentable over Suzawa et al. in view of Admitted Prior Art; and

Claims 1-6, 21-22 and 27-28 are rejected as being allegedly patentable over Applicant's Admitted Prior Art figures 1A-1B and their description in the instant application, in view of Fukuda (U.S. Patent No. 5,880,035) and further in view of Chen et al. or Yang et al.; and Claims 7-15, 23 and 29 stand rejected as being allegedly unpatentable over Applicant's Admitted Prior figures 1A-1B and their description in the instant application in

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view of Fukuda (U.S. Patent No. 5,880,035) and further in view of Paranjpe et al. (U.S. Patent No. 5,580,385).

These rejections are moot in light of Applicant's claim amendments. Nevertheless, Applicant respectfully requests that the Examiner consider the following remarks.

As is clear from amended independent Claims 1, 6, and 7, the first and second etching processes are applied in the same chamber, and then, a new, unprocessed substrate is introduced into the chamber and the first etching process, which also has an automatic cleaning function of the chamber, is applied. Suzawa, Chen, or Yang or the AAPA, either alone or in the combinations set forth by the Examiner, fail to teach or suggest each and every element of at least independent Claims 1, 6, and 7.

When, for example, a first etching process is applied using gas containing fluorine or gas containing a mixture of fluorine and oxygen for the first substrate and a second etching process is applied using a gas containing a mixture of chlorine and oxygen in the same chamber as described in Claim 1 of the present application, the etching product of the second etching process will remain in the chamber because the etching product has low volatility, as discussed in the specification. In the presently claimed invention, however, after the first and second etching processes are applied in the same chamber and the second etching process is completed, the first etching process is applied to a second (new) substrate. The first etching process can automatically clean the etching product produced during the second etching process with respect to the first substrate.

None of the citations discloses or suggests the structure or necessity for the structure of different types of etching processes which enable automatic cleaning of a product produced during an earlier etching process by a later etching process.

Suzawa discloses a plurality of etching processes in Figs. 3A-3D and in the specification, column 11, line 64 to Column 15, line 38. However, Suzawa fails to disclose cleaning of the chamber and does not recognize a relationship between the cleaning and the etching process.

Chen discloses application of a plurality of etching processes in a same dry chamber in Fig. 8 and in the specification, Column 3, line 49 to Column 4, line 8. However, Chen fails to disclose the relationship between cleaning of the chamber and the etching process.

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Neither Yang nor Fukuda discloses the relationship between the etching process and cleaning of the chamber in which the etching process is applied.

AAPA and Paranjpe fail to disclose application of a plurality of etching processes to one layer, and thus, fail to disclose the relationship between the cleaning and etching process in the chamber, similar to the other above mentioned citations.


Since none of the citations, either alone or in combination, discloses or suggests application of the first and second etching processes in the same chamber and automatic leaning, in the first etching process, of the etching product produced in the second etching process, the presently claimed invention is not obvious. In addition, there is no motivation in the citations to make the presently claimed invention with a reasonable expectation of success, and is therefore not obvious. For at least these reasons, independent Claims 1, 6, and 7 are not obvious and are therefore allowable. Moreover, as dependent claims from an allowable independent claim, Claims 2-5 and 8-15 and 21-23 and 27-29 are, by definition, also allowable.

In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. Accordingly, it is requested that this application be allowed and a Notice of Allowance issued. If the Examiner believes that a telephone conference with the undersigned would be advantageous to the disposition of this case, the Examiner is cordially requested to telephone the undersigned.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

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